

Conservation of rare and endangered fauna

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IN isolation, arguments for the conservation of rare animals are very powerful and appealing. Projects for this purpose are more attractive to the public and attract more money than any other single type of conservation activity. They are the traditional background of the International Union for the Conservation of Nature and Natural Resources and the World Wildlife Fund.

However, from the point of view of conservation as a whole, a heavy emphasis on endangered species programmes may be detrimental to the broader conservation goals because of the resources diverted from other, more broadly based programmes designed to benefit large numbers of species. If endangered species programmes are to be undertaken then these should be attacked in priority sequence taking into account the taxonomic value of the species, level of current threat and likelihood of success of a rescue operation.

The first problem in this area is usually definition of the status of the animal in question. A rare species is not necessarily endangered (e.g. the Eastern Bristlebird) although rare species with very tight habitat requirements and limited distributions are more likely to be at risk of extinction than other species. On the other hand, abundance is not necessarily a guarantee of long term survival as illustrated by the Passenger Pigeon.

GUEST EDITORIAL

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In order to make the best decisions as to the best course of action with a species of concern, it is firstly essential to have information on the direction and rate of change of the size and distribution of its population(s), the factors limiting its abundance and distribution and the nature and severity of the threats to its long term survival. We generally have this information only in the cases of the most studied species, and the most common species that are pests. With the more common species, the lack of information is of little consequence for the time being, unless a new and potent threat is foreseen. However, with the uncommon species and those known to be declining, it is important that at least the fundamental data are obtained and that trends in population size are monitored.

When a species is greatly reduced in numbers and is continuing to decline, collection of the information required to manage it is difficult and expensive. Any study under such conditions is denied the use of techniques that require the sacrifice of animals or that involves a significant risk of killing animals. Such techniques are sometimes the most efficient way of getting essential data in a hurry and speed in the acquisition of data may be of great importance in a deteriorating situation. Fortunately, improved trapping and handling techniques, excellent radio tracking equipment and advances in the science of ecology help to offset these constraints. However, the substantive point remains that it is expensive and time consuming to undertake major ecological studies on most rare animals.

The second major requirement in an endangered species programme is the elimination of factors causing the species to decline in the first place. Unless these are corrected, the best that can be done is to maintain the species in captivity, or at a site outside its refugia. In some cases the latter is acceptable, when the species can be released into previously occupied range, but this is of no use unless the factors causing its extirpation from that range have been removed. However, there are significant questions of genetic integrity which must be resolved before such a release can take place. This is not easy in a

case where a species in the wild is reduced to a remnant and a substantial captive bred population exists.

The third major requirement is in monitoring the changes in the population after the hypothesised limiting factors have been removed or reduced. This phase is equal in importance to research, and removal of perceived limiting factors must continue over several years. A number of endangered species programmes have failed because initial apparent success has been followed by failure through inadequate management of limiting factors and failure to detect downward trends in the population.

No endangered species programme can succeed in the long term without public support. This requires an educated public in the community at large, and particularly in the area(s) in which the species is found. It is not expected that an educated local population will be able to do much directly to support the species in question (although this can occur) but knowledge and sympathy are much more likely to prevent deleterious habitat change caused by people than are rules and penalties.

This leads naturally to questions of enhanced legislation for the better protection of endangered species. It is certainly true that there can be benefit in tougher legislation to protect species from taking, killing and trading; for compulsory retention of habitat on private lands or lands under the administration of government agencies and statutory authorities; to prevent or control some practices such as the use of some chemicals or the construction of

works which would disadvantage a species. These all have their place if the government and its agencies are prepared to use them and the public understand and accept this. However, conservation by force is unlikely to be successful unless it is used very sparingly. Legislative tools such as the above should be included in the armoury of any government that wishes to conserve its fauna but they must not be used in a way that is seen to be oppressive, and oppression may be perceived or real. Once again, education has a critical role.

In conclusion, conservation on a species by species basis is expensive and risky. Programmes to preserve individual species must be approached with a cold eye towards priority, the chances of success and the opportunity costs of one conservation project on others. There is no point in pursuing the conservation of one species while others become endangered because of lack of knowledge or implementation of that knowledge. At the present time, our lack of quantitative data on the abundance and ecology of much of our fauna is the greatest threat to its long term conservation (Giles and Lim, 1987).

REFERENCES

GILES, J. R. AND LIM, L., 1987. Conservation of the endangered native species of New South Wales. An assessment of current status, threats and requirements for maintenance of wildlife populations. In Proceedings of a National Conference on Conservation of Threatened Species and Their Habitats. Sydney, March 3-6, 1987. In press.

Successful applicants for 1987 to the

Ethel Mary Read Research Grant Fund

of the

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(Name; project title; amount awarded)

1. Kerry Ann Parry-Jones. "Locating colony sites of the Grey-Headed Flying-Fox *P. poliocephalus* from the air". \$540.
2. Anne Rachel Kemp. "Distribution of Lungfish in Australia". \$600.
3. David Read. "Population Density of the Hastings River Mouse *Pseudomys oralis* Thomas (Rodentia: Muridae)". \$400.
4. Linda Heaphy. "The population dynamics, diet and aspects of the ecological physiology of the pig nosed turtle, *Carettochelys insculpta*". \$300.
5. Harold Parnaby. "Systematics of Australo-Papuan Long-eared Bats (*Nyctophilus*)". \$575.
6. D. C. D. Happold. "Patterns of home range and movements of subalpine rodents". \$300.
7. Bradley C. Congdon. "The significance of gene flow in Island Silvereyes (*Zosterops lateralis chlorocephala*)". \$300.